

4. BARKING DEER *MUNTIACUS MUNTJAK* IN MUNDANTHURAI, TAMIL NADU

A note by Ray *et al.* (2000) states that the authors saw Barking Deer once in Deer Valley, and twice in Kadayam, that Barking Deer had apparently moved into Deer Valley from Kadayam and are new additions to the fauna of the Mundanthurai Sanctuary.

Barking Deer is a common nocturnal of the Deer Valley. When I was Warden, Mundanthurai, I named the area Deer Valley, as four deer species, i.e. Spotted Deer, Sambar, Barking Deer and Mouse Deer were seen there.

The Forest Working Plans of Lasrado, Rajasingh and Wilson refer to Barking Deer. J. Wilson writes about the long tongue of the Barking Deer. Besides, old shooting records, a wildlife map of Mundanthurai by M.A. Badshah, and the Tiger Reserve Proposal to the Government of India by Saroj Raj Choudhry mention this deer's presence in the area. Choudhry (1984) did a pellet group sampling of Deer Valley.

In 1973, T. Jeyadev, Chief Conservator, on seeing the footprints and droppings of barking deer in a fenced and failed sandalwood plot in Koiltheri in his field inspection notes wrote succinctly, "We, however, have

nice neem plants, thanks to the Barking Deer". Sandal was raised with neem as hosts; Barking Deer nibbled off sandal seedlings, leaving the neem plants alone (Jeyadev 1973).

I had taken Dr. Krishnaswamy with Dr. Murali Chandrasekaran to Kannikatty Forest Rest house in 1977. We had seen a Barking Deer, the darker variety, opposite a *Gluta travancorica* sample plot established in 1914. Dr. Krishnaswamy has recorded this in the Forest Rest House book (Entry for 1997).

Barking deer is not a new addition to the fauna of the Sanctuary. It was always there. While the excitement of seeing an animal for the first time in the wild is understandable, authors are advised to refrain from rushing to hurried conclusions, like this imaginary mammalian movement.

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RAY, JAYANTI, JUSTUS JOSHUA & J. RONALD (2000): Sighting of barking deer (*Muntiacus muntjak*) in Kalakad-Mundanthurai Tiger Reserve, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 97(1): 139-140.

5. MORTALITY OF WILD ANIMALS IN ROAD ACCIDENTS IN KUMBHALGARH WILDLIFE SANCTUARY, RAJASTHAN, INDIA

Kumbhalgarh Wildlife Sanctuary is spread over 585 sq. km, and lies between 20° 5' - 23° 3' N, and 73° 15' - 73° 45' E, c. 200 km south of Jodhpur in the west Aravalli hills of Rajasthan, India (Fig. 1). The altitude varies from c. 274 to 849 m above msl. The Sanctuary is characterized by a distinct winter, summer and monsoon. During summer, the temperature fluctuates between 30 and 35 °C, and may reach 46 °C during May and June. The mean winter temperature is 5 °C; it may go down to 2 °C during December-January. Average annual rainfall is recorded as 725 mm, while the minimum is 403 mm and maximum is 950 mm.

The forest is mainly dry deciduous or woodland type, dominated by gorya dhawa (*Anogeissus latifolia*), salar (*Boswellia serrata*), gol (*Lannea coromandelica*), kherni (*Wrightia tinctoria*), dhawa (*Anogeissus pendula*), kumbat (*Acacia senegal*), khair (*Acacia catechu*), ber (*Zizyphus mauritiana*), and dhak

(*Butea monosperma*). The undergrowth mainly consists of jharber (*Zizyphus nummularia*), adusa (*Adhatoda zeylanica*), gangan (*Grewia tenex*), franger (*Grewia flavescens*), kanter (*Capparis sepiaria*), and lantana. Some climbers and grasses are also found.

The main fauna of the Sanctuary includes Leopard (*Panthera pardus*), Hyena (*Hyaena hyaena*), Wolf (*Canis lupus*), Jackal (*Canis aureus*), Sloth Bear (*Melursus ursinus*), Four-horned Antelope (*Tetracerus quadricornis*), Chinkara (*Gazella bennettii*), Porcupine (*Hystrix indica*), Sambar (*Cervus unicolor*), Blue Bull (*Boselaphus tragocamelus*), Common Palm Civet (*Paradoxurus hermaphroditus*), Jungle Cat (*Felis chaus*), Fox (*Vulpes bengalensis*), Crocodile (*Crocodylus palustris*) and Rock Python (*Python molurus*).

Road kill data was collected during a long-term study on the eco-behavioural diversity of the Hanuman

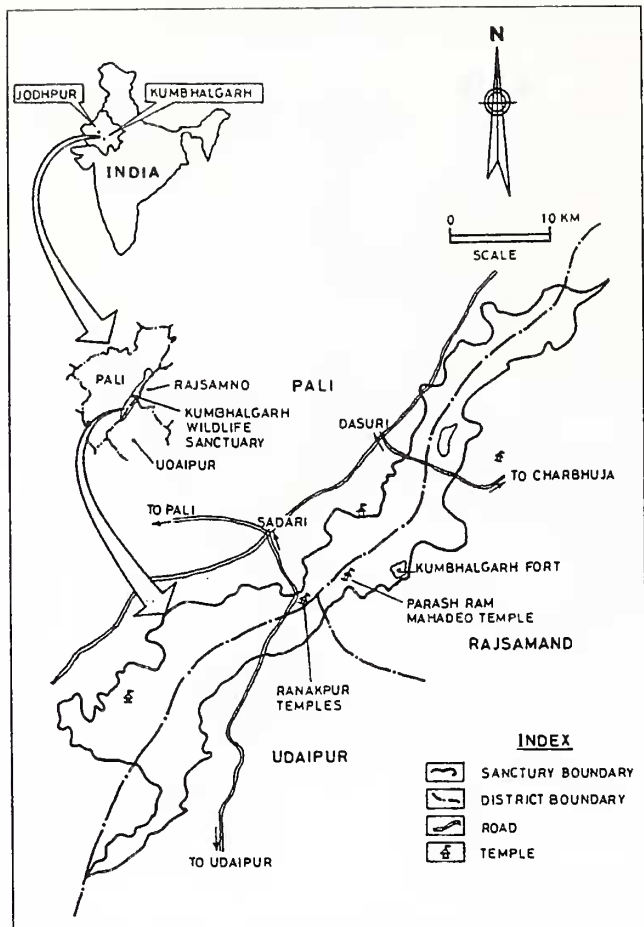


Fig. 1: Location of Kumbhalgarh Wildlife Sanctuary in the Aravalli Hills

Langur (*Semnopithecus entellus*) in and around Kumbhalgarh Wildlife Sanctuary. Two state highways (about 25 km long) and 3 ancillary roads (30 km long) pass through the Sanctuary. Between December 1995 and August 1999, while driving on the highway to and from the study area, the location and species of each road kill was recorded. Occasionally, road kills were also reported by forest officials and drivers. This information was verified and included in the study. The recording efforts remained more or less constant throughout the study. Road kills generally disappeared from the road within a few hours to a day, with scavengers operating in the area. This study is limited to larger animals, like mammals, birds and reptiles, though frog and invertebrate kills were common. During the tourist season and monsoon, the number of road accidents was high. To estimate the percent mortality, the monthly road kills were calculated from the data collected during December 1995 to December 1998.

A total of 374 road kills (Table 1) were observed and recorded in and around Kumbhalgarh Wildlife Sanctuary. Of these, 80% occurred on highways. They

were common along sharp turns, slopes, near water holes and on small tracks, which were preferred by animals for crossing roads. Altogether 43 species of animals were found killed in road accidents. Of these, 49% were birds, 39.5% were mammals and 11.5% were reptiles. The most common victim was the Hanuman langur, followed by the common palm civet and squirrel (*Funambulus pennanti*).

Doves and babblers were the common bird species in the road kills (Table 1). Of the total reptile kills, the Checkered Keelback (*Xenochrophis piscator*) was the main victim.

Maximum road kills (13.9%) were observed in August during monsoon and minimum (3.2%) in June during summer. Fewer road kills were recorded between January and July (Fig. 2).

Some vehicle - animal collisions also involve material damage and human casualties. Nine collisions between vehicles and blue bull were recorded during this study. In several accidents, the drivers successfully avoided hitting an animal, but in the process lost control of the vehicle. On an average, one animal collision occurred every month on the roads in and around the Sanctuary. Deliberate killing of animals by drivers was also recorded.

The most commonly killed mammals were nocturnal species, like common palm civet and jackal. Wild boar and blue bull usually got killed in the evenings when they crossed the road, as they moved out of the Sanctuary to raid crop fields (Chhangani and Mohnot 1997).

Home ranges of the study troops of Hanuman Langur cross over the highway located in our study area. Road accidents have also been observed in other study sites by Mohnot (1974), Rajpurohit (1987), Agoramorthy (1987), Chhangani and Mohnot (1997), and Rajpurohit and Chhangani (1997).

Large numbers of Hanuman Langur are killed in road accidents. Of the total langurs killed, about 25% were victims of road accidents (Chhangani 2000). The world famous Ranakpur temple is visited by a large number of tourists, who offer food to langurs, which keep close to the temple (Chhangani 2000). The langurs expect food from every passing vehicle, so they do not give way to speeding vehicles, and are killed by them. Provisioning of langurs along the roads is common due to religious sentiments. Many times, during fights and other interactions between bisexual troops and all-male bands, these animals while running and chasing each other suddenly come in front of a vehicle, get hit and often die instantaneously.

Langurs also use the roads for walking, running and foraging for vegetation along the roadside. Besides,

Table 1: Animal kills recorded in road accidents in Kumbhalgarh Wildlife Sanctuary from December 1995 to 1998

Common name	Scientific Name	Nos. Killed	Common name	Scientific Name	Nos. Killed
MAMMALS					
1. Leopard	<i>Panthera pardus</i>	2	5. Rock Bush-quail	<i>Perdicula argoondah</i>	2
2. Hyena	<i>Hyaena hyaena</i>	1	6. Grey Junglefowl	<i>Gallus sonneratii</i>	5
3. Jackal	<i>Canis aureus</i>	12	7. Indian Peafowl	<i>Pavo cristatus</i>	6
4. Blue Bull	<i>Boselaphus tragocamelus</i>	6	8. Blue Rock Pigeon	<i>Columba livia</i>	5
5. Wild Boar	<i>Sus scrofa</i>	3	9. Indian Ring Dove	<i>Streptopelia decaocto</i>	16
6. Wolf	<i>Canis lupus</i>	1	10. Red Collared-dove	<i>Streptopelia tranquebarica</i>	8
7. Fox	<i>Vulpes bengalensis</i>	5	11. Little Brown Dove	<i>Streptopelia senegalensis</i>	12
8. Common Palm Civet	<i>Paradoxurus hermaphroditus</i>	24	12. Greater Coucal	<i>Centropus sinensis</i>	6
9. Jungle Cat	<i>Felis chaus</i>	6	13. Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	2
10. Hanuman Langur	<i>Semnopithecus entellus</i>	29	14. Common Myna	<i>Acridotheres tristis</i>	3
11. Common Mongoose	<i>Herpestes edwardsi</i>	4	15. House Crow	<i>Corvus splendens</i>	9
12. Small Indian Mongoose	<i>Herpestes javanicus</i>	5	16. Jungle Crow	<i>Corvus macrorhynchos</i>	2
13. Squirrel	<i>Funambulus pennanti</i>	20	17. Common Babbler	<i>Turdoides caudatus</i>	14
14. Indian Gerbil	<i>Tatera indica</i>	10	18. Jungle Babbler	<i>Turdoides striatus</i>	6
15. Field Mouse	<i>Mus platythrix</i>	14	19. Pied Bush-chat	<i>Saxicola caprata</i>	8
16. Indian Hare	<i>Lepus nigricollis</i>	5	20. Indian Robin	<i>Saxicoloides fulicata</i>	2
17. House Mouse	<i>Mus musculus</i>	8	21. House Sparrow	<i>Passer domesticus</i>	12
Total		155	Total		144
BIRDS					
1. Long-billed Vulture	<i>Gyps indicus</i>	4	REPTILES		
2. Indian White-backed Vulture	<i>Gyps bengalensis</i>	7	1. Common Indian Monitor	<i>Varanus bengalensis</i>	25
3. Grey Francolin	<i>Francolinus pondicerianus</i>	9	2. Monitor (unidentified)	<i>Varanus sp.</i>	4
4. Common Quail	<i>Coturnix coturnix</i>	6	3. Indian Cobra	<i>Naja naja</i>	5
			4. Cat Snake	<i>Boiga trigonata</i>	12
			5. Checkered Keelback	<i>Xenochrophis piscator</i>	29
			Total		75

these busy roads help them to avoid predators, like the Panther, Wolf and Jackal that usually avoid coming on the roads in the day.

Amongst birds, doves and babblers were the worst affected (38% of total kills) as they usually feed on the

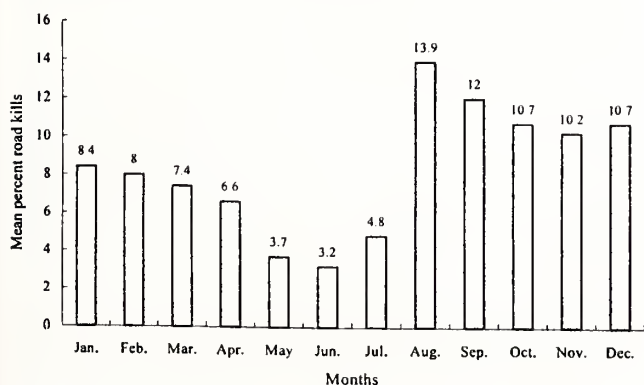


Fig. 2: Percent road kills in different months in and around Kumbhalgarh Wildlife Sanctuary (Dec. 1995 to Dec. 1998)

road. They are attracted to the seeds and grains that fall from transport vehicles, and dead insects and ants crushed on the roads during monsoon. Birds are run over or hit when taking off suddenly. A large proportion (16%) of birds killed were vultures and crows. These scavengers get hit while feeding on dead animals on the road. Among the reptiles, the Checkered Keelback are most affected. They are killed in the monsoon mostly on roads and near water holes, because of their amphibious habit (R.C. Sharma pers. comm.). The road kill problems of Kumbhalgarh Wildlife Sanctuary are similar to those in Spain and in African protected areas (Lopez 1993, Lopez and Roviralta 1993, Broekhuysen 1965, Lewis 1989, Drews 1991).

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6. GREATER SPOTTED EAGLE *AQUILA CLANGA* PALLAS AND NORTHERN SHOVELLER *ANAS CLYPEATA* LINN. — TWO RARE RECORDS FROM KERALA

On January 11, 2001, while conducting the waterfowl census at the Kattampally wetlands near Kannur, a Greater Spotted Eagle *Aquila clanga* was seen. The raptor was observed for almost one hour, in good light, as it soared overhead. It was a dark brown bird having broad wings with splayed out primaries, underwing-coverts darker than the flight feathers, white spots on the upperwing forming a thin wingbar and white uppertail-coverts. These features suggested that the bird was an immature. The author is familiar with this species with many sightings at Bharatpur. Kattampally is one of the major wetlands of Kerala and hosts large congregations of migratory and resident water-fowl. On November 20, 1998, the author along with N.K. Satyan had seen a soaring *Aquila* eagle being mobbed by a Brahminy Kite *Haliastur indus*, but specific identification was not possible as the raptor was too far away.

The only published record of the Greater Spotted Eagle in Kerala is a single undated sighting by Srivastava *et al.* (1995), quoted by BirdLife International (2001).

At Kattampally, on March 27, 2001, 4 male Northern Shovellers *Anas clypeata* were spotted by P.C. Rajeevan and the author among a group of more than 500 Garganey *Anas querquedula* and Northern Pintail *Anas acuta*.

An early record of this species from Kerala is that of a specimen received by A.O. Hume from Wynaad (Kinneer and Whistler 1930).

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